THE IMPOSSIBLE MYTH OF THE VERNACULAR CITY AS A PARADIGM FOR OPTIMISING RESOURCES

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Abstract: Vernacular architecture is considered an ideal way to understand design, as an example of simplicity and the conservation of resources, specifically energy. Along these lines, urbanism has proved to be the most suitable expression of humanity's habitat in a specific geographical surrounding.

However, the application of vernacular architecture and urbanism as a model no longer works, and it has become an unreachable myth. The current systems of construction have made the vernacular model of architecture impossible: a new paradigm must be reinvented and it has to be admitted that processes and society have changed, making current vernacular architecture meaningful only as a focus of study. The same research studies on favourably valuated buildings with current methods of environmental evaluation reflect this situation: these constructions cannot be identified within their own geographic context.

In order to analyse this situation, certain conditions and basic elements have been schematically and generally identified allowing for the creation of vernacular architecture, including production methods, social structure and user participation in the process, among others. With this data, a fundamental framework for comparison has been established. This framework for comparison has been applied, first, to the social structures that have allowed for a vernacular urban model, and second, to an urban structure considered as contemporary. Mainly, the conclusion is that the criteria under which this architecture has been conceived are not applicable, thus not to be repeated.

1. TIME SCOPE. TERM DEFINITION.

As it is well known, vernacular architecture is a very broad term, which can be applied to a wide geographical space –almost the whole world—and at the same time to an extremely extended period of time. As Jain has stated (Jain 2007) [1], "vernacular architecture is understood to mean the buildings of the people, built by the people". It is an anonymous, spontaneous architecture and it is constructed, in most cases, by the users themselves.

Nevertheless, the settlements of marginal constructions, shacks groupings or a temporary construction are not included under the term vernacular architecture.

“Popular” or vernacular architecture in order to be considered as such needs to have a basis of collective knowledge or processes established throughout time and transmitted by generations who have chosen the most effective and suitable items to be maintained in time.

In addition, vernacular architecture can be defined by opposition: that which is built following craft processes, as opposed to industrial processes. Therefore, there is a need to establish a term for the non-vernacular architecture, and that is conventionally the term “industrial”.

The contrasts, frictions, and overlappings of these two types of socio-economic developments –that is industrial societies as opposed to artisan/craft societies— define the possibility of adopting seized criteria from the vernacular architecture to the present sustainable one. Several examples can be given --as are the use of constructive materials such as metal planks, concrete prefabricated elements and plastics in all the different shapes-- which have a very different meaning regarding sustainability and depend on the development level of the specific society. This different meaning needs to be studied and analyzed.

2. STATE OF THE ART. VERNACULAR AS HISTORIOGRAPHIC ARGUMENT.

The importance or relevance of popular architecture has been established within the frame of the historiography or an aesthetic specific sphere within architecture, but almost always lacking a consideration as a present system, neglected as a working system nowadays.

Bernard Rudofsky in his famous “Architecture without architects” [2] in the 60’s reopened the path to value popular architecture as an extraordinary example of adaptation to the place, rediscovering the beauty of an architecture annihilated by industrial development. Unfortunately only very few architects have performed a real, practical, useful application of vernacular architecture and not a historical or nostalgic interpretation of it. Among them, Hassan Fathy [3] can be pointed out, who developed a constructive activity based on traditional techniques in the 60’s in Egypt.

There have also been other ways of recuperating materials and activities, such as the experiences presented at the conference in Modernlehmbau, Germany [4], and at the conferences on raw materials and the network between Europe and Latin America (Interacción, Proterra, Arquiterra, Craterre) where the aim has been to recuperate traditional techniques. These attempts, despite their clear interest, their plastic beauty and their interesting social goals, represent nevertheless an extremely

reduced production as opposed to the more massive, homogeneous and standardized type of buildings.

As a result of the environmental concern, vernacular architecture has been valorised regarding its capability to adapt to the climate and environment. But if the validity of this architecture is to be highlighted, it has to be analyzed from a new perspective to research its characteristics and to understand how this architecture has adapted to an economic and social system which is now impossible any longer.

For this reason, it is important to study the issue from another point of view and to analyze its characteristics regarding our new social structure and the present building process system. The goal of the study is to understand the former capacity of vernacular architecture to adapt to the social conditions of the time being, which permitted in turn, valuable and durable results.

3. IMPORTANCE OF THE VERNACULAR CITY AS AN EXAMPLE OF SUSTAINABILITY.

Many research works have shown the validity of vernacular architecture as a sustainable model in the whole world, both from a point of view of the concept of architecture in relation to the nearby nature and also as an adaptation to the social system and lifestyle. Several examples can be pointed out as the ones in Europe: Portugal (Caldera et all 2000) [5], Spain (Rohmer 1998)][6], as well as the works by Lucien Kroll about Rwanda [7], or other authors in Korea (Lee et all 2007) [8].

In other occasions, the social environment of architecture is valued and understood as a consequence of a lifestyle, in different geographies: e.g. the Mzab in Argelia (Bouchair and Dupagne 2003)[9]. The sensibility towards the physical, external characteristics and landscape as features of vernacular architecture is valorised as a distinctive type of architecture specific to the Polish Carpathian mountains – the hutsul grazhda- (Heim and Witkowsky 2002)[10]; or other similar characteristics can be depicted at the dessert of Sonoran, EEUU(Floyd 2000) [11].

The intuitive interior description of the space, together with available materials is being studied at the igloos of the Inuit. They are considered as the perfect system to reach the maximum possible comfort within the harsh external conditions (Hosoe et all, 2005) [12].

Several authors have shown an interest for the constructive materials used, pointing out that traditional materials such as stone, wood and specially mud are being substituted by reinforced concrete and steel structures. Thus, many valuable characteristics are being lost. This situation has become a common problem in

different far away places and countries on our planet as in Spain (González et García-Navarro, 2006) [13] or Korea [Kim et all, 2007) [14].

The performance of traditional constructive methods has been technically analyzed from an energetic efficiency perspective. This has been done with the solar chimneys used as wind towers to control the temperature in warm climates; for example, the tower built following traditional architecture criteria in Kyushu (Japan) [Song et all, 2007][15]. A great deal can also be learnt from the light, flexible and ductile structures of the "tongkonan" traditional houses from the Celebes Islands in Indonesia (Kristi and Artch 2005) [16].

Another form of valuating sustainable aspects in vernacular architecture is the reinterpretation being done of materials such as earth in raw state, both by its thermal and aesthetic qualities, proposing at the same time traditional systems of floor heating – Hibachi o Kotatu – in Japan (Ono et all 2005) [17] and using the same materials, stone, wood and earth of the Han-ok tradition (Park et all 2007) [18].

The concept of "energetic density" or the incorporated energy in the materials used in vernacular architecture has also been studied in comparison with conventional architecture. The result of the different studies made shows always a favourable outcome to vernacular architecture in the various parts of the world where research has been carried out: in Australia (Mitharane and Vale 2004) [19], or in Yunan, China (Renping et Zhenyu 2006) [20].

4. PROPOSAL: VALIDITY OF THE WHOLE AS OPOSSED TO VALIDITY OF THE PARTS.

Vernacular architecture has been considered as a model form of understanding construction; as an example of simplicity and saving in general, and more precisely, of energetic saving in all parts of the world, understood within the culture where vernacular architecture is inserted. In a similar way, the spontaneous popular urban planning was the most adequate expression of the human habitat in a specific geographic environment.

It might be useful to make a comparison with a chain developed from its origin (the need of the user) until the final product (the building) conformed throughout by a series of perfectly fitted links which are the materials, the constructive system, the adaptation to the surrounding environment, the available resources, the users' knowledge of their own needs, etc. When an example of sustainability with the use of the different materials in vernacular architecture is studied, one of these chain link units is removed, isolated and analyzed, as if a specific design inserted in specific geographic conditions was being admired. Both situations are to be admired, but with certain limits since they have been extracted from the whole process, from the entire chain serving as a model for the present situation and circumstances. Therefore, the exemplarity of each of these units is limited, and does not fit exactly; probably it can even be incorrect if it is analyzed as an isolated consideration. It is

important to look at the process as a whole, to the collective working and adaptation of all the separated chain links together.

5. AIMS: STUDYING THE VERNACULAR FROM NEW PERSPECTIVES.

As a consequence, it is necessary to find a way to understand which aspects of vernacular architecture can be useful, and are still feasible, and which ones are to be improved.

Naturally, all these ideas have different answers regarding the diverse cultures, economic systems and development levels in each place. But it is also clear that there is a tendency towards balancing the development levels: the industrialization process of all countries seems to be a continuous operation, although the stages reached have not been the same.

A reference frame is to be established in order to compare and study both architecture characteristics –the vernacular and the industrial o pre-industrial, so as to later be capable of adapting the most suitable features to each particular circumstance, to each country or region, and to the specific development level.

6. BASIC PREMISES.

In order to perform the analysis, firstly, the distinctive features of vernacular architecture are established. The importance of these features was considered when a great number of researchers determined and coincided in stating those characteristics as distinct and significant of this type of architecture, either by the production methods, the social structure, the participation of the users in the process, etc.

Secondly, these criteria have been applied to the present circumstances in an attempt to establish comparisons between frames which are very different from those historical situations and therefore socio-economic ones.

With these data, an elementary frame of reference has been established. This in turn could be applied, on the one hand, to the social structures which have permitted an urban model considered as vernacular, and on the other hand, to the present urban structure.

6.1 Aims of vernacular architecture and of conventional architecture

The vernacular city fulfils the specific, immediate needs of the persons inhabiting it. There are no further elaborated, sophisticated or complex goals. There is a clear objective directly connected with the product: that is the immediate satisfaction of the personal needs of the user. Nevertheless, in conventional architecture, or in industrialized countries, the unique and exclusive aim is to give appropriate shelter, but there are also other secondary objectives or even main ones such as the

economic profit, its value in the market, or even the purpose of building to obtain an economic asset.

6.2 Needs

The knowledge of the needs architecture has to satisfy shows a direct, clear and extensive relationship in the case of vernacular architecture, although it is not so for conventional architecture. The user of traditional dwellings clearly knows the program to be developed. However, conventional architecture defines and decides the programs and facilities of the dwellings in a general and collective way, estimated for a type-user, standardized and interpreted by external persons. The possibility of achieving a product in accordance with the needs of the user is therefore, more remote than that of popular architecture and hence, the user's satisfaction and the fitting of the product is more difficult. In the cases of urban participative projects, the collaboration with the user is done in a collective form, at an urban scale, through general lines, but rarely it is done in an individualized form or directly compromised with the individual product specific for each user.

6.3 Responsibilities

Jurisdictional uses of each society establish the responsibility of the building acts. In popular culture, during centuries, the concept of responsibility regarding architecture has not existed, except for the global legal relationships among properties in the countryside, without any specific paragraphs related to buildings. The latter has always been exerted by the user.

This is not the case in the present processes of building construction, understood as very complex industrial system, over which –in this ever more judicilized world-- the responsibilities over the building services are demanded to someone else rather than the user, sometimes through State institutions and in other occasions by the companies or technicians of the construction companies. As a consequence, the complexity of standards and the levels of services which the building quality has to guarantee, as a result of laying on professionalized persons, tend to keep away the finished product from the knowledge and understanding of the user who has to endure it.

6.4 Process

The construction of popular dwellings was made in a direct form, by the users themselves, or by very close people with essential building knowledge, both artisan and primary crafts. The constructive tradition was transmitted in the same places where the construction took place, with shared knowledge and techniques, not very specialized, and with strong local character. This implied a great interrelation with the environment.

When building in general and the dwellings in particular modified their evolution changing into industrial processes, the construction became something totally alien

to the user; it is highly elaborated, complex, technically specialized and produced by a very fragmented and highly professionalized collectivity.

6.5 Acquisition

The spontaneous characteristic of vernacular architecture allowed its creation to be adapted and flexible to the economic capacity of the user. Only constructions which the users were capable of doing were started, and those could be adapted slowly to the changing needs of the user by refurbishments and enlargements or in a longer time period over the following generations.

In the present system, the housing construction is a rigid, inflexible, formal process and almost unfeasible for the economic capacity of the average user. Housing financing is in the hands of companies whose benefits are also charged to the construction process and therefore turned onto the user. The product is also rigid; it does not allow any gradual enlargement or adaptation to the changing needs of the user, regarding family programs or different lifestyles.

6.6 Affiliation

Vernacular architecture is basically characterized by the lack of affiliation, that is, it is anonymous, not pretentious, interpreted by the user. There are no author names known, nor recognized ones. Not surprisingly then, did Rudofsky [2] called his book “Architecture without architects”. This indicates that it was performed by common people without specific technical knowledge nor theoretical-artistic one. It was based on the intuitive comprehension of the technique, and the simple interpretation of aesthetic criteria based on practical aspects, simplicity and the addition of units.

The present building production is personalized, designed by an author/architect, more or less famous, but always carried out by technical staff, specifically prepared and with a great technical implication. The technique includes, an common language, a technical definition of the building, based on specific plans and documentation unapproachable by the user.

6.7 Natural environment

Traditional dwellings were made at the place where they were needed, in the surroundings of the place of work of the user, in the near, close-by land, chosen and known by the user. The relation between environment and user was very familiar and hey were totally adapted. This lead to a practical culture which included the knowledge of the climate and weather, the geological characteristics of the land, and the use of local resources and similar features of the near-by environment. The present location of buildings, both in big and small cities is imposed and decided through complex political and economic processes, completely unknown and foreign to the user. The user’s participation, when there is one, is also a complex operation and of collective character. Since the industrial revolution to the present, the election of the location for the user’s house depends thoroughly on the market conditions,

which does not coincide with the user priorities and indeed, in many occasions they represent a random choice for the user.

6.8 Social environment

The social environment applied to the study of housing and city refers to the social relations which define the building process in a certain moment. In traditional architecture, the construction process was shared among users and several close artisan professionals. The building process was a manual one, and it took place in an environment close to the user, applying known and feasible techniques. The house maintenance was viable and done by the user himself, who knew the basic techniques and who was in close contact with the specialized artisans, sharing a common ground.

In the industrialized world, the construction takes place within a frequently hierarchical system, with specialized and industrialized techniques, distributed in fragmented fields of highly qualified specialists or professionals. At the same time, the normative and standards, as well as the complex administrative system to be followed overwhelm the user's ability to follow the process, and users find themselves totally foreign to the resulting product. The users' ability to maintain and keep up their own dwelling is also reduced, being unable to perform the maintenance in a direct way. The users' role is reduced to that of the person who has to pay for the house maintenance which is again in the hands or outside specialized technicians or professionals.

6.9 Materials

In the rural traditional setting, the materials for the house construction were directly acquired and available in the construction location area. These materials were known by the user and were easily handled by the users themselves or by the nearby artisan.

However, in the construction processes of the industrialized systems, the materials are chosen by the designer and often following complex criteria. The place of origin of the material is quite often not very clear, because in its complex industrial process, it can have travelled several countries or continents. Therefore, its affiliation is basically unknown, not only by the user, but even by the contractor selecting it. In the material selection, general economic or marketable considerations often play an important role, apart from other indecipherable reasons.

6.10 Resources

Vernacular architecture is essentially characterized by its adaptation to the existing conditions in the pre-industrial societies. Hence, this architecture has been very close to being self-sufficient, performed with the materials available on site, although to a limited extend. That is, the user made the most out of the existing resources found on the nearby land, adapting the comfort levels to the best possible

service contribution with the available resources. The availability of resources was hence more important than the desired service to be fulfilled.

In industrial architecture, the contribution of the material element has a priority over the available resources. There is no adaptation to the external conditions nor to the resources, which have always been considered limitless and available. The comfort level is independent to the external conditions, and it is ensured by the use of technology based on energy resources no matter how far these can be or how costly their use.

7. CONCLUSIONS.

A structural methodology has been used to compare the main characteristics of the two systems in which traditional architecture has taken place as opposed to the present architecture.

What vernacular architecture has taught us is both the adaptation to the climate and location, as well as the way to adapt and adjust its conditions to the social structure of the historical time period. Nowadays those conditions cannot be repeated. Cities and vernacular architecture of our time should look for an imbrication of the new trends imposed by industrialization, and also for the adjustment to our new social structure, to the social values and to the present economic system.

Nevertheless, in order to reach a vernacular architecture of our time, some of the characteristics are basic. One of them is the presence and compromise of the user in the constructive process. As has been stated, the industrialized construction has a one of the main features the total absence of the user in the construction process. During the building life cycle, from its origin to the end life, including the intermediate maintenance phase, the user just enjoys or suffers the dwelling, without actively participating in the conception and construction process.

Today's house can only be sustainable if the study of this circumstance is deepened and resolved, acknowledging the reality of the dwelling as a consumer object industrially carried out and used, with the use of a complex technology, and separated from the final addressee. As opposed to the paradigm of vernacular architecture, "housing built for the people by the people", the statement of "housing for the people without the people" should be confronted.

Table 1

	VERNACULAR ARCHITECTURE	INDUSTRIAL ARCHITECTURE
AIMS	Cover specific needs in a spontaneous way, personally decided by the user	Programmed planning of collective aims, decided through administrative processes.
NEEDS	Specific user needs. Constantly being adapted and changed.	Standardized, interpreted in a collective form, generalized and estimated for a type-user.
RESPONSIBILITIES	Limited to the juridical uses of each moment, exerted by the user	Demanded to agents, corporatively by companies and technicians, not to the user.
PROCESS	Direct, carried out by the user, performed following essential and primary knowledge.	Foreign to user, elaborated, complex, technified, carried out by a highly professionalized collectivity.
ADQUISITIONN	Adaptable and flexible regarding user's economic possibilities.	Rigid, inflexible, and affordable for the economic possibilities of the average user.
FILIATION	Anonymous, not pretentious, interpreted by the user-.	Personalized, made by an author, not coinciding with user.
NATURAL ENVIRONMENT	Immediate, close-by , decided by the user, known to the user.	Imposed, decided by an administrative process, unknown to the user.
SOCIAL ENVIRONMENT	Collective, manual, spontaneous, impersonal	Hierarchical, highly technified, controlled.
MATERIALS	Direct acquisition, on the construction site, very little industrialized, feasible to the user.	Of unknown origin, highly industrialized, unknown to the user and not selected by him/her.
RESOURCES	Limited, from the area. The existing resources are more important than the service contribution necessary.	Depending on far away resources, limitless. The service contribution is more important than the available resources.

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